MOTOROLA

MARKETING REQUIREMENTS SPECIFICATION – Version 2.4

MOTO/MRSDOC/GL/2.4

SUBJECT	Mobile Smart Card Terminal – Based upon the StarTAC 85 Cosmo, with 2 card readers
FROM	Laurence John – Business Development Manager, Mobile Smart Card David Gannon – Technical Manager, Mobile Smart Card Guy Lanrezac –Product Manager, Mobile Smart Card Handsets
DATE	Thursday, 31 December 1998

REVISION HISTORY

Version	Description	Author
Version D.1.0	Draft requirements Jan 23rd 1998	L. John
Version D.1.1	Draft requirements Jan 24th 1998	L. John / D. Gannon
Version D 1.1	*Draft requirements date .....*	*L. John / D. Gannon*
Version D 1.2	*Draft requirements date ..... – Tech Marketing comments*	
Version D 0.3	*Draft requirements date 16-Apr-98*	*G. Lanrezac*
Version D 0.4	*Added Ref. Docs. And abbreviations*	*D. Gannon*
Version 1.0	Added comments on SIM selection & multi-slot management	D. Gannon
Version 1.1	Added Change Requests following May SMG9 meeting Definition of requests for Phase 1 and Phase 2 Additional request for support of Asian language	G. Lanrezac
Version 1.1	Tracking number 1.0 (no need for "Check card" prompt (STK responsibility)	
Version 1.3	• Add of target dates for Phases 1 to 4 • Update on GSM technical specification versions • Reference to specification for embossed card readers ISO 7810 & 7811 • Definition of SIM selection mechanism • Restructure of Phase 1 (Functionality, Software, MMI) • Update on Request for New Core Software Features • Reference to Flex requests for Phase 1 • Add of ZAP refresh features	G. Lanrezac
Version 2.0	• Flex off SIM selection mechanism • Support of SIM Tool Kit Command: Event Driven with no queuing	G. Lanrezac

Version	Description	Author
	• Introduction of Alex Refresh features	
Version 2.1	• Renaming of Phases 1 to 4 to Alex, Alex Refresh, Leap & Einstein • 16K SIM requested for Alex • Increase SIM ADN locations from 155- 255 requested for Alex • Increase SIM SMS locations from 35 to 75 requested for Alex • Request to not implement SIM selection via MMI until legal issues are solved • Marketing Requests for STK commands for Alex Refresh	G. Lanrezac
Version 2.2	• Definition of STK requests for Alex Refresh • Assessment of EMV card reader differences • Request to be able to flex off B slot for SIM reading capability • Request to read up to 15 characters on a 96x32 display	G. Lanrezac
Version 2.3	• Add of Status words for handling SIM data download error' STK command • Assessment of how Event Queuing should be implemented • Introduction on Leap features • Multi slot management postponed	G. Lanrezac
Version 2.4	• Introduction of Event Driven for Alex • Confirmation that only Automatic SIM selection is requested for Alex & Alex Refresh.	G. Lanrezac

MOTOROLA

Table

1 INTRODUCTION 4

1.1 RELATED DOCUMENTS 4

2 ALEX : PRELOADED MOBILE ATM AND BANK INFO IN THE HAND 8

2.1 FUNCTIONALITY 8
2.1.1 CASE LISTING – MULTIPLE CARDS PRESENT IN TERMINAL 8
2.1.2 Change Requests following the May SMG9 meeting 9
2.2 SOFTWARE 9
2.2.1 SIM Tool Kit 11
2.2.2 Support of Asian Languages 12
2.3 MMI FOR SIM SELECTION 14
2.3.1 Purpose 14
2.3.2 Scope 14
2.3.3 Introduction for Automatic SIM selection 15
2.3.4 Manual SIM selection 15
2.3.5 General Description 15
2.3.6 Requirements 16
2.4 MMI FOR SECURITY 24
2.4.1 Keypad tone suppression upon PIN entry 24
2.4.2 Character display suppression upon PIN entry 24
2.4.3 Elimination of PIN taping, sniffing mechanisms &/or applications 24
2.5 FLEX 24
2.5.1 Flex for generic Dual Slot StarTAC 24
2.5.2 Flex Barclays / Cellnet Trial 24

3 ALEX REFRESH: FLEXIBLE MOBILE ATM AND BANK INFO IN THE HAND 25

3.1 CHANGE REQUESTS NEEDED FROM THE GSM SPECIFICATION 25
3.2 SOFTWARE 25
3.2.1 Main Features 25
3.2.2 SIM Tool Kit 25
3.2.3 Card Reader 27
3.2.4 Other Features 27

4 LEAP : BROWSING, ON-LINE PURCHASING, INFO-BASE IN-HAND, BANK IN HAND 29

4.1 INTRODUCTION 29
4.2 CHANGE REQUESTS NEEDED FROM THE GSM SPECIFICATION 29
4.3 SOFTWARE FEATURES 29

5 EINSTEIN : WEB BROWSING, ON-LINE PURCHASING, INFO-BASE IN-HAND, BANK IN HAND, TICKETING 30

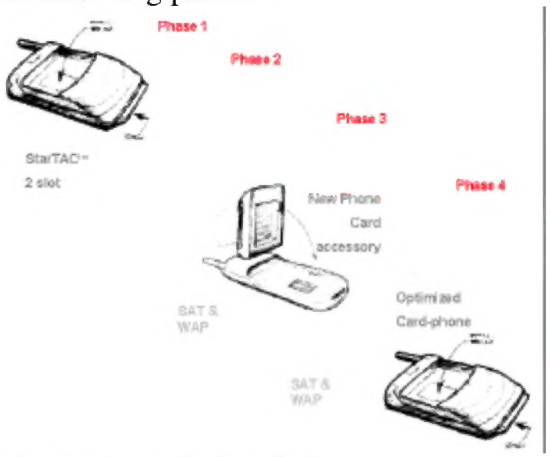
5.1 INTRODUCTION 30
5.2 NEW MMI FEATURES 30

6 OTHER IDENTIFIED FEATURES WHICH HAVE NOT BEEN SCHEDULED TO DATE 31

6.1 MULTI-SLOT MANAGEMENT 31
6.2 SOFTWARE 32
6.2.1 SAT Menu Selection 32
6.3 ADVANTAGEOUS FEATURES FOR MOTOROLA 32
6.3.1 Pre-initialised B-slot card control 32
6.3.2 Auto-initialisation procedure for un-initialised B-slot cards 32
6.3.3 Auto-connect mechanisms for Certain Priority B-slot cards 32

1 INTRODUCTION

This requirement document will specify functionality required by a 2 slot terminal i.e. “Mobile ATM with SIM & Smart card. Requirements should be considered in their entirety, for a roadmap and portfolio of products to be launched over the coming 2 years. Where, workload can be considerably reduced in order to launch the 1st 2 slot SMS phone by December 1998, feedback on trade-offs and compromises is requested.
In order to give a better visibility on the requirements, this document will trace the different phases of the offering illustrated by the following picture :



More information can be found on the Motorola Vision Document On Smart Cards

- **Alex (December ’98):** The requirement concerns a StarTAC 85 (with Cosmo hardware) with 2 slots. The phone will need to support at least Class 2 SIM Tool Kit commands + dual slot change requests. The data bearer will be based on SMS.
- **Alex Refresh (Q2 ’99)**: By adding Phase 2 USSD, transactions will be made much quicker. Note: Phase 2 (with Phase 2 USSD) will need Class 3 SIM Tool Kit.
- **Leap (Q3 ’99)**: Add on accessories for Leap will need to be made available. Data inside, richer SIM Tool Kit and WAP will also need to be added.
- **Einstein (Q4 ’99):** By this stage a product category which accepts a large SIM card (for dual slot functionality), will be defined.

1.1 RELATED DOCUMENTS

INTERNAL:
- GSM Data Bearers for Delivering E-Cash Applications to the MS – D. Gannon, Issue 1.0, 24/09/98
- MSCT Implementation strategy – D. Gannon, Draft Issue 1.0, 16/11/97

GSM TECHNICAL SPECIFICATIONS:
- 11.11 (v5.9.0, v6.1.0, v7.0.0), SIM / ME interface specification
- 11.14 (v5.8.0, v6.00, v7.0.0), SIM Toolkit specification
- 02.17 (v7.0.0), SIM functional characteristics
- Dual Slot Change Requests currently being written, these will define generic specifications for how GSM ME will use Smart Cards and interact with them via SIM Toolkit commands. These will result in changes to: 11.14, 11.11 and 02.17.

ISO

- 7816 1-9, Smart Card specifications, including Smart Card Readers, all Smart Cards, including SIM Cards should conform to these specifications, (apart from AFNOR, which we will ignore as it will be replaced by ISO from 1999)
- Specification for embossed card readers ISO 7810 & 7811

DML

The following documents are part of the DML consortium, this is formed to deliver turnkey solutions:
De La Rue – SAT SIM
Logica – Bank to SMS server, using Aldiscon for the SMS server
Motorola – Mobile Smartcard Terminal

- GSM NETWORK CRITERIA FOR STORED VALUE CARD LOAD – DML/GNCL/ALDISCON/DOC1/0.1

Required Quality of Service (Min/Max Transaction times, latency etc)
GSM Network Messaging, GSM Network Exception processing/messaging, GSM Network to Payments Systems Gateway Functions and Exception Handling, Gateway Interchange Messaging Audit Control, MIS/Reporting

Draft releases available for review by April 20th, Issue 1.0 required by 05 May, Owner: Aldiscon

- TECHNICAL SPECIFICATION FOR MST - DML/MSTTS/DG/DOC2/0.6

All technical issues for Mobile Smart Card Terminal, SIM to ME process, SVC to SIM process ME/SIM to Network process

Draft 0.6 available for review, Release 1.0 required by 05 May, Owner: Motorola

- FUNCTIONAL SPECIFICATION – DML/FS/MS/DOC3/0.1

Business Service Overview, Offline Functions, Online Functions, Main components and their functions (references to other documents for detail)

Draft issues available for release April 20th, Release 1,.0 required by 05 May, Owner Logica

- MMI LOAD SPEC (USER INTERFACE GUIDELINES)- DML/MMIS/MS/DOC5/04

Flow of transaction for MMI, Messages to be displayed, Mapping Matrix, Offline functions, Online functions, Other Functions, process exceptions (tearing, reversals), Transaction event scenarios

Draft 0.4 available for comment, Issue 1.0 due 05 May, Owner: Visa

- SECURITY SPECIFICATION – DML/SS/DG/DOC4/0.3

Overall description, Transport layer Security, Funding Account PIN/Telecode Security, SIM Key Management

Draft 0.3 is available for comment, references to tele-codes will be removed, Issue 1.0 required by 20 April, Owner: Motorola

- TRANSACTION WALK THROUGH – DML/TWT/OS/DOC6/0.2

Detailed Walk through, Component by component description, Messages and Description, Message Exception Analysis

Draft 0.2 available for comment, Issue 1.0 required by 05 May, Owner: De La Rue
The 'Transaction Walk through' currently only addresses a positive transaction, this needs to be broadened to encompass Error Handling: Issue 2.0 required 18 May

- SMS LOAD PROTOCOL – DML/SMSLP/OS/Doc7/0.1

SIM – SMSC message protocol, SMSC – SIM message protocol, Sequencing data, Transport protocol

Draft 0.1 available for comment, Issue 1.0 required by 05 May, Owner: De La Rue

- PROJECT PLAN AND TIMESCALES – DML/PP/DS/Doc8/0.1

Detailed PP for all DML companies
Draft 0.1 available for comment, Issue 1.0 required by 20/04/98, All to provide input

- SIM / ME SAT INTERACTION – DML/MSSAT/OS/Doc9/0.1

Defines All standard SAT commands and All Dual Slot SAT commands used in the transaction Flow chart of MMI / SVC Interaction using SAT commands

Draft 0.1 available for by 20/04/98, Issue 1.0 required by 05 May, Owner: De La Rue

VISA
The following VISA specifications are available in paper form only, held by D. Gannon

- Visa International Concentration point specification, v2.1, 01/07/95 (Green)
- Visa International Reloadable SVC card Specification, v1.5, 01/01/96 (lime green)
- Visa International VISA Cash Card system overview, v N/A, 01/06/95 (dark pink)
- Visa International CAD/Service payment terminal specification, v1.0, 12/08/96 (magenta)
- Visa International Public key SVC terminal specification, v1.0, 08/96 (dark yellow)
- Visa International specification for reloadable SVC with Public key technology, v1.0, 08/96 (pale green)
- Visa International Reloadable Visa Cash Card Specification, v1.6, 10/01/97 (pale yellow)
- Visa International Disposable SVC card specification, v1.2, 01/07/95 (sky blue)
- Initialisation and Personalisation: DES based reloadable SVC, v2.0, 01/01/97 (light blue)
- VISA Cash – Planning and Implementation guide, r2.0, 03/96
- Consolidated PIN Security Standards Requirements, 15/04/95
- VISA Cash Reload Description, R1.4, 11/96
- VISA Cash Load Device Guide, DRAFT, v0.9, 11/97

DEFINITIONS

B-Slot -	Refers to the 2nd smart card slot in an ME, where large SIM & SAT applications are expected to reside.
Combi card	Combination of Contact and Contactless card.
Contact card	Chip based cards following the ISO 7816-1 8 pin layout specification.
Contactless card	Chip based cards that have no contacts and can be read using RF at distances of a few meters, mainly used in Mass Transit systems.
Memory card	Originally Pre paid, usually, telephone cards, now used for health records and vending etc., very poor security, not re-useable, hence the term, Disposable
Multi-application card	Chip based card able to run multiple applications but with a firewall between the applications, e.g. GSM SIM and Electronic purse etc. (Florida State University).
Multi-function	Chip based card able to run multiple applications seamlessly, e.g. GSM SIM and Electronic purse etc. (Not yet in production) – finance/GSM card
Processor card	The on-board processor makes the cards highly secure, many uses e.g. SIM, Cash cards etc., can have a high storage capacity.
SAT -	SIM Application Tool-Kit
SIM	Subscriber Identity Module
Smartcard -	In the context of this document this is the term for cards other than the primary SIM, usually referring to chip based a cards such as a VISACash card, or AMEX, Mondex, mass transit cards etc. All conform to the ISO smart card technical specification ISO 7816.
T=0	Asynchronous, half duplex, byte oriented
T=1	Asynchronous, half duplex, block oriented
T=2	Asynchronous, full duplex, block oriented (in preparation)

2 Alex : Preloaded mobile ATM and bank info in the hand

2.1 Functionality

2.1.1 CASE LISTING – MULTIPLE CARDS PRESENT IN TERMINAL

Tracking Number	Plug in SIM A Slot	Internal SC B-Slot	Comments
1.0	SIM + SAT		• On power-up the ME looks at the B-slot (default) and on not finding a SIM, looks at the A-slot • ME works like current GSM phone with SAT • MMI requirements will be driven by SAT
1.1		SIM + SAT	• On power-up the ME looks at the B-slot (default) ME can function as a standard GSM phone, including standard SAT operation • If B-slot commands are issued, (defined to drive SC T=1 or T=0 (finance-Smartcard) the MMI will be handled by the SAT, prompting the user to insert the appropriate SC
1.2	SIM + SAT	SIM	On power-up, the ME looks at the B-Slot (default) & operates normally (ie does not offer SAT functionality). Reference SIM selection mechanism section: (98p226) This feature needs to be flexed on / off
1.3	SIM	SIM + SAT	On power-up, the ME looks at the B-Slot (default) & operates normally and if B Slot commands are issued, perform as 1.1 This feature needs to be flexed on / off
1.4	SIM + SAT	SC T=1 or T=0	• On power-up, reference document which could create precedent to look GSM card (GSM 11.11 stated that large SIM takes precedence over small SIM): 1. Phone looks at B Slot for SIM (default) / doesn't find, stores ATR 2. Looks at A Slot, finds SIM and powers up as phone. 3. On activation of SAT B Slot application, comms between plug in SIM and B slot ISO card commences • After initial ATR procedure B-slot card left un-powered until its participation in a transaction is requested. • On selection of a SAT app requiring the participation of a B-slot card In a transaction, the B-slot card would be powered, identity verified and addressed appropriately.

The following table resumes the different possibilities with a dual slot phone with SIM, SIM + SAT and a SC T=1/0. Two cases have been rejected :

4. Phase 1 need not consider the possibility of a multi function finance/GSM plug in card. This may be relevant in Phase 4 features.
5. We do not take into account an SC T=1 or 0 to be inserted in the Plug-in. This could be avoided by making sure that Smart cards are only ISO format for Phase 1.

Possibilities	Phase	Plug in SIM A-Slot	SC B-slot	Comments
1	Phase 1	SIM		OK
2	Phase 1		SIM	OK
3	Phase 1	SIM	SIM	ISO B slot overrides (SIM selection Phase 2)
4	Phase 1	SIM + SAT		OK as per 1.0
5	Phase 1		SIM + SAT	As per 1.1
6	Phase 1	SIM + SAT	SIM	As per 1.2 (SIM selection Phase 2)
7	Phase 1	SIM	SIM + SAT	ISO B slot overrides (SIM selection Phase 2)
8	Phase 1	SIM + SAT	SIM + SAT	Slot B overrides (SIM selection Phase 2)
9	Phase 1	SIM	SC T=1 or 0	Normal operation (no menu)
10	Phase 1	SIM + SAT	SC T=1 or 0	OK as per 1.3
11		SC T=1 or 0		Not relevant
12			SC T=1 or 0	Error message “Check card”
13		SC T=1	SIM	Not relevant
14		SC T=1	SC T=1/0	Not relevant
15		SC T=1/0	SIM + SAT	Not relevant

2.1.2 Change Requests following the May SMG9 meeting

Tracking Number	Description	Specified in GSM
98S030	Perform APDU, Power Off Card, Power on Card and Get Reader Status proactive commands	11.14
	Event Driven. Note: Phase 1 will support the card reader section. The call control section will be deferred until phase 2.	SMG (98) 99
98S021	Multi Card Reader (note: Phase 1 will support the default selection (B slot takes priority as described in 98S022).	11.11
98S022	Multi Card Reader (if 2 SIMs are present the end user does not have a menu allowing him to choose which SIM he wants to use, this will be implemented for Phase 2).	02.17

2.2 Software

The following chart resumes the main new features supported for existing & future platforms. The marketing request is to have as many features as possible for Alex.

Tracking Number	Description	8900 (modem)	StarTAC 85 (modem)	ZAP (firestorm)	ZAP refresh (firestorm)	Alex – (modem) Marketing Request
Phase II						
0151		✓		✓	✓	✓
0152	DHFA enhancement package	✓		✓	✓	✓
0127	GSM voicemail support	✓		✓	✓	✓
0145	AoC Charging improvements	✓		✓	✓	✓
0024	Auto-Read MT-SMS	✓		✓	✓	✓
0042	Seamless Power A (External power sources)	✓	✓	✓	✓	✓
0198	Headset answer on/off support		No		✓	Alex Refresh
0198	Smart Key (place/answer calls with Smart Key)		✓	✓	✓	✓
0165	Stop Call Alert with Volume Keys			✓	✓	✓
0025	Improved Call Divert	✓		✓	✓	✓
0002	Phase II MMIC/MMIS	✓		✓	✓	✓
0003	Phase II SMS	✓		✓	✓	✓
0043	Seamless Power B (DHFA)	✓	✓	✓	✓	✓
0131	Delayed Power On & Off flex control			✓	✓	✓
0004	IP-SMS management via PC	✓	✓	✓	✓	✓
0137	IP-Phonebook	✓	✓	✓	✓	✓
0082	Multiparty Calling	✓		✓	✓	✓
0166	Call Transfer	✓		✓	✓	✓
0156	Service Provider name	✓		✓	✓	✓
N/A	Support for DSP car kits	✓	✓	✓	✓	✓
N/A	Invalid battery feature		✓	✓	✓	✓
N/A	Erase Last 10 numbers when SIM is removed	✓		✓	✓	✓
N/A	Asian SMS			✓	✓	✓
N/A	SIM Tool Kit unicode			✓	✓	✓
0039	6 x SIM interface			✓	✓	✓

Tracking Number	Description	8900 (modem)	StarTAC 85 (modem)	ZAP (firestorm)	ZAP refresh (firestorm)	Alex – (modem) Marketing Request
Refresh						
N/A	16K SIM				✓	✓
0155	Increase SIM ADN locations from 155- 255				✓	✓
?*	Increase SIM SMS locations from 35 to 75				✓	✓
0115	SMS Delete all messages option				✓	✓
0023	MO-SMS reply to MT-SMS				✓	✓
0014	SMS Phone book access				✓	✓
?*	Change CLI lookup to use 8 digits				✓	✓
?*	Conference call / call transfer improvement				✓	✓
	New Quick Access items					
	Show Date				✓	✓
	Find New Network				✓	✓
	Show Credit Remaining				✓	✓
	SIM selection					Not Requested
	Eastern European Language				✓	✓
	EFR			✓	✓	✓
	EFR + HR				✓ (Q4 '99)	Alex Refresh

2.2.1 SIM Tool Kit

SIM Tool Kit Phase 2 with second card reader commands and event driven command (with no queuing) are requested for Alex.

2.2.1.1 SAT Menu selection

The SAT application will be accessed via a dedicated key (location is MR key of StarTAC 85) and/or the menu key and/or upon Smart Card insertion (except if SIM is active: queuing is not requested for Alex. Once pressing the dedicated key, the ME will directly display the first item of the SAT menu (not the header). Upon selection of an appropriate SAT application menu option – (select item, get input etc.) the service handler application will commence. The application will (when required) direct commands to the B-slot card, using standardised ETSI SAT B-slot commands. For a **Alex Refresh**, this selection may evolve into an ICON choice, again driven by standardised ETSI commands (currently under definition – D. Gannon contact). Note: this is a preferred choice of many customers, and available with Alcatel/Gemplus and being developed by Siemens/G&D and D1.

Operators have expressed their preference to see a maximum number of SIM Tool Kit items on one same screen. At this point of time the ME displays one item at a time. The display of all items of a menu (up to 4 on a graphic display) will depend on availability from core products. The marketing requirement has been submitted to John Holstrom.

2.2.1.2 Event Driven

Requirement

Procedure to support display of VisaCash menu when a valid VisaCash card is inserted.
Specification
All references are to GSM 11.14, v7.0.0

ME and SIM to support:
- SET UP EVENT LIST 6.6.16

EVENT DOWNLOAD Card reader status event 11.7
There will also be impacts on TERMINAL PROFILE 5.2

NOTE GSM11.14, v7.0.0 is an unpublished specification, there are several omissions in it. The following have been identified (not exhaustive) and conveyed to the SMG9 secretary:
Annex H does not appear in the index
Normative Reference [11] GSM 04.90 (USSD), does not appear in the body of the document, perhaps it should be in 6.4.12 or 9.1.2
Icons should appear in Annex A as a letter class, Lc
Card reader status should appear in Annex A as a letter class, Lc
Card reader status should appear in the event list 12.25
Card reader status should appear Annex G as continuously reported
Card reader status should appear in Terminal Profile 5.2

Description
- ME to indicate to SIM that it supports Event - card reader status
- SIM application will set up the card reader status event in set up event list and give this to ME
- ME will note this and respond when card reader status changes, i.e. when a card is inserted
- The SIM will respond to this event by powering on the card and performing ATR
- The SIM will ascertain if the card is a valid card (is VisaCash and is not expired etc.)
- If the card is valid the SIM will react as if it had received a select item from the menu above the Visa Cash menu (or as defined by the customers)
- If the card is not valid the SIM will display the relevant text

2.2.2 Support of Asian Languages

2.2.2.1 Hardware

Up to 2M flash memory will be added to contain Asian language font data, character coding conversion data and so on. (Please refer StarTAC 100C for layout)

2.2.2.2 Unique / Key Features

2.2.2.2.1 All Asian (& selected European) Prompts

The user will be able to select any of the following language prompts in a single transceiver including Thai and Vietnamese w/ Tonal Marks.
- Simplified Chinese Character
- Complex Chinese Character
- English
- Thai
- Vietnamese with Tonal Marks

- Bahasa – Indonesia

2.2.2.2.2 All Asian SMS:

The user will be able to receive and view MT and CB SMS messages in the following languages:
- Simplified Chinese Character
- Complex Chinese Character
- English
- Thai
- Bahasa – Indonesia

A single transceiver will be capable of receiving and viewing MT and CB messages in any of the following characters:
- Complete GB13000 character set (same as StarTAC 100C). This includes all Complex and Simplified Chinese Characters of the following codes:
  - GB 2312-80
  - GB 12345-90
  - Big 5
  - CNS
  - Complex and Simplified "slang' characters
  - All remaining characters in the GB 2313-80, GB 12345-90, codes.
  - An additional 139 characters from the Big 5 code.
- An additional 140 characters consisting of all GSM 3.38 default characters plus other ASCII characters.
- Complete UCS2 Thai
- Complete UCS2 Bahasa – Indonesia

2.2.2.3 SIM Tool Kit Application Unicode support (UCS2) (planned for September in core products)

SIM Tool Kit Application should support Unicode (UCS2).
The user will be able to access SIM Tool Kit Application in the following languages:
- Simplified Chinese Character
- Complex Chinese Character
- English
- Thai
- Bahasa – Indonesia

2.2.2.4 UCS2 Phonebook (phase 1 for shipments in September)

The alpha tags will support UCS2 coding according to GSM 11.11 version 5.8.0. Please refer UCS2 Phonebook Marketing Requirement Spec for detail.

Phase1. No Chinese names could be inputed from keypad. User can enter only Latin characters.
a POS software

Air customerization) through Web page or
For sorting and retrieving of Phone Book entries, user can find Chinese phone book entry by location. Under "Find by name", all name tags will be alphabetically-sorted first. Chinese names will be listed in second section right after all name tags.

Phase 2. Advanced methods for sorting and retrieving of Phone Book entries.

User can select a telephone number from a list of
The order is based on any and all name tags that are stored in the repertory memory. The name tags will be alphabetically-sorted based on Pin-yin method. If Latin name and Chinese name's Pin-yin are the same alphabetically-, Latin name tags will be sorted first and

For example, Pin-yin of a Chinese name will be "Chang". Another Chinese name may have the Pin-yin of "Cheng ". Then there are two English names like "Cherry", and "Charles". The overall

B. An index consist of the initials of Pin-yin of Chinese names will be added to each name tags. User alphabetically-sorted Phone Book entries. The order is based on any and all name tags will be alphabetically-sorted based on the initials of Pin-yin index. If Latin name and Chinese name's Pin-

tags.
For example, index of initials of Pin-yin of a Chinese name " Xue Peng" will be "ZXP". Xue Yu". Then there is
English names like "Zach". The overall sequence should be (1)" Zheng Xue
"Zhang Xue You".

name

tag. This
could be built using this sequence field.

2.3 MMI for SIM selection

2.3.1 Purpose

The intent of this document is to state the requirements for the SIM selection user interface.

Card project may reference this document.

2.3.2 Scope

The Alex StarTAC will be the first phone to encompass the Smart Card capabilities. This includes

time. This document describes the user interface and guidelines governing the SIM selection. This

will not have the dual-slot capabilities flexed on.

2.3.3 Introduction for Automatic SIM selection

Automatic SIM selection will mean that upon insertion of the large SIM ID-000 (B slot) the ME will reboot the large SIM ID-000. Upon extraction of the large SIM, the ME will reboot the small SIM ID-1 (A slot).

2.3.4 Manual SIM selection

Manual SIM selection means that the user is offered a menu that allows him to select the SIM he wants the ME to camp on. **Until legal issues have been clarified (expected quote by legal around January '99) only Automatic SIM selection will be requested for Alex.**

2.3.4.1 References

[1] GSM 02.17 Version 5.0.1, Change Request A22

2.3.4.2 Definitions, Acronyms, and Abbreviations

A-Slot - Internal ME location for the ID-000 SIM.
B-Slot - Internal ME location for the ID-1 SIM.
ID-000 SIM - Refers to the small, plug-in SIM card. Also referred to as SIM 1.
ID-1 SIM - Refers to the full-size SIM card. Also referred to as SIM 2.
SCIM - Smart Card Interface Manager (Smart Card includes both GSM and Non-GSM Cards)
SIM - Subscriber Identity Module
Smart Card - Cards other than the primary SIM including VISACash, AMEX, Mondex, etc.

2.3.4.3 Overview

This document will provide the guidelines for SIM Selection and the related user interface. It will not, however, provide the technical realization of the Smart Card project including required primitives, communication between the MMI and SCIM layer, and modifications to the existing SIM event handler.

2.3.4.4 Pathname

This requirements document is located at
`/usr/global/docs/gsm/ECSD/RAE/SREQ/sim_select_ui`

2.3.5 General Description

2.3.5.1 Product Perspective

This SIM selection mechanism is a subsection of the Smart Card Project. Its success is dependent upon the implementation of the other subsections including the Smart Card external interface and the SCIM-MMI router.

2.3.5.2 Product Functions

The SIM Selection mechanism is responsible for choosing the correct SIM upon the mobile power up sequence. When two SIMs are available, it must also give the user the flexibility to immediately switch the SIM card. In addition, the user must be notified of the current card being used in the idle display.

2.3.5.3 Product Direction

Eventually, phones may come equipped with two large SIM slots or two small SIM slots making the SIM Selection a more vital role in the future Smart Card phones.

2.3.5.4 General Constraints

None.

2.3.5.5 Assumptions and Dependencies

None.

2.3.6 Requirements

2.3.6.1 Flexing

2.3.6.1.1 Default SIM

- Introduction

The phone must "remember" the default SIM card since the setting is used on power-up. Therefore, the selection must be placed in non-volatile memory.

- Storage Requirements

TITLE: Factory Default SIM Setting
ANCHOR: 0001_01
SOURCE: [2]
A byte in SEEM must be reserved to store the factory default
SIM setting. The default SIM location will be set to the B-Slot.

TITLE: Default SIM Setting
ANCHOR: 0002_01
SOURCE: [2]
Another byte in SEEM must be reserved to store the current default SIM setting. This will initially be set equal to the factory default SIM setting.

2.3.6.1.2 Extended Menus

- Introduction

Extended Menus must have a flex bit to indicate whether the feature is originally in short or extended menus.

- Storage Requirements

TITLE: Extended menus flex bits (To be flexed off for phase 1)
ANCHOR: 0003_02
SOURCE: [2]
One extended menu flex bit needs to be reserved in SEEM element 10 for the SIM Selection menu. Therefore, the SIM Selection Menu can be placed in short or extended menus, but its children cannot ("Select Active SIM" and "Select Default SIM"). This is done for two reasons: first, we only have a few extended menu bits left, and also, if there is only one child in a sub-menu, it will be "bumped"

up. This could create an undesirable menu where "Select Active SIM" would be in the Call Related Features menu options—not under "Select SIM".
Note: If SIM Selection is placed into extended menus and extended menus are off, then its menu leafs will not be visible either.

TITLE: Default Extended Menu Location (To be flexed off for phase 1)
ANCHOR: 0038_01
SOURCE: Conversation John Holstrom and Guy Lanrezac
By default, the SIM Selection Menu will be placed in the short menus.

2.3.6.1.3 SIM Selection Feature

- Introduction

Certain operators may not want the user to switch the default SIM. Therefore, the SIM selection user interface must be flexible.

- Input Requirements

TITLE: Flexing the SIM Selection Feature
ANCHOR: 0004_01
SOURCE: [2]
One bit in SEEM element 14 needs to be reserved to flex the SIM Selection user interface (including the menus, quick access, and idle display) on and off.

2.3.6.1.4 Re-Initialisation Requirements

- Introduction

Through the Master Reset option, the user can reset all phone settings back to their original factory defaults.

- Input Requirements

TITLE: Resetting the Default SIM
ANCHOR: 0005_01
SOURCE: Conversation John Holstrom and Guy Lanrezac
After the user performs a Master Reset, the factory default SIM setting will be copied into the current default setting, and the SIM menu will be returned to the short menus.

TITLE: SIM State after Master Reset
ANCHOR: 0037_01
SOURCE: Conversation John Holstrom and Guy Lanrezac
After the user performs a Master Reset, the SIM will also be reset. This includes powering down the primary SIM, powering up the new SIM, and initialising the new SIM as stated in GSM 11.11 "SIM Initialisation Procedure". In other words, this is just as if the user pulled out the current SIM and inserted a new one.

2.3.6.2 User Interface Requirements

2.3.6.2.1 Menus (To be flexed off for phase 1)

- Introduction

With the addition of the SIM Selection Menu node, the Call Related features will be modified as shown.

Call Related Features	Show Battery Meter		
	Restrict My Phone Number		
	Call Diverting		
	SIM Selection	Select Active SIM	SIM 1
			SIM 2
		Select Default SIM	SIM 1
			SIM 2
	Talk and Fax		
	Call Waiting		
	Call Barring		
	Key Answer Only		

- Menu Location Requirements

TITLE: SIM Selection Menu
ANCHOR: 0006_01
SOURCE: [2]
The new menu "SIM Selection" will be placed in the Call Related Features Menu Node. This option will be placed between "Call Diverting" and "Talk and Fax".

TITLE: Select SIM Menu
ANCHOR: 0007_01
SOURCE: [2]
The "Select Active SIM" menu option will be placed as the first menu node under the "SIM Selection" menu.

TITLE: Select SIM Menu Options
ANCHOR: 0008_01
SOURCE: [2]
When the user selects the "Select SIM" menu, he/she will have two choices: "SIM 1" and "SIM 2".

TITLE: Current SIM Menu Option
ANCHOR: 0009_01
SOURCE: [2]
The SIM currently in use will be indicated in the "Select Active SIM" menu options by a tick mark to the left of the menu option. This menu option will also be shown to the user first.

TITLE: Default SIM Menu
ANCHOR: 0010_01
SOURCE: [2]
The "Select Default SIM" menu option will be placed as the second menu node under the "SIM Selection" menu.

TITLE: Default SIM Menu Options
ANCHOR: 0011_01
SOURCE: [2]
When the user selects the "Select Default SIM" menu, he/she will have two choices: "SIM 1" and "SIM 2".

TITLE: Current Default SIM Menu Option
ANCHOR: 0012_01
SOURCE: [2]
The SIM currently set as the default SIM will be indicated in the "Select Default SIM" menu options by a tick mark to the left of the menu option. This menu option will also be shown to the user first.

- Restrictions

TITLE: SIM Selection during a Call
ANCHOR: 0013_01
SOURCE: [2]
SIM selection options will NOT be available while in call (i.e., they will not be placed in the in-call menus).

TITLE: SIM Selection Visibility
ANCHOR: 0014_01
SOURCE: [2]
The SIM Selection menu will only be visible to the user when two valid GSM SIM cards are present.

TITLE: SIM Insertion while in Call Related Features
ANCHOR: 0015_01
SOURCE: [2]
If the user is in the Call Related Features menu and inserts a second SIM card, then the SIM Selection menu will not be visible to him/her until the user exits the Call Related Features Menu and re-enters it.

TITLE: SIM Removal while in Call Related Features
ANCHOR: 0016_01
SOURCE: [2]
The "SIM Selection" menu will be visible to the user even if he/she removes the secondary SIM card while in the Call Related Features. However, if the user decides to choose either the "Select Active SIM" or "Select Default SIM" menu option, he/she will get an error message, "Feature Not Available". The "SIM Selection" menu option will disappear once the user exits the Call Related Features.

- Output Requirements

TITLE: Confirmation for Switching the SIM

ANCHOR: 0039_02
Conversation with John Holstrom and Guy Lanrezac.
If the user chooses a new SIM card for either Active or Default SIM, then they will be given the

an automatic message window using the large chicanery icon.

TITLE:
ANCHOR: 0017_01
[2]
Once the user selects a new SIM card under "Select Active SIM", the ME will power down the

Initialisation Procedure". In other words, this is just as if the user pulled out the current SIM and inserted a new one.

Result of New Default SIM Choice
ANCHOR:
SOURCE: [2]

this setting will be used the next time the user starts the phone.

2.3.6.2.2 Quick Access (To be flexed off for phase 1)

- Introduction

Since the "Select SIM" menu might not always be available to the user, the quick access feature

-

TITLE: Quick Access Icon
0019_01
SOURCE:
The Quick Access icon is shown below:

TITLE: Short Quick Access Prompt
ANCHOR: 0020_01
SOURCE: Conversation with John Holstrom and Guy Lanrezac
The short prompt for the Quick Access item will be "Switch SIM".

TITLE: Long Quick Access Prompt
ANCHOR: 0021_01
SOURCE: Conversation with John Holstrom and Guy Lanrezac
The long prompt for the Quick Access item will be "Switch Active SIM".

- Restrictions

TITLE: Selecting Quick Access Option while in a Call
ANCHOR: 0022_01
SOURCE: Conversation with John Holstrom and Guy Lanrezac

The user can still add the "SIM Selection" to his/her quick access list while in a call. If he/she decides to access it while in a call, an error message will be displayed "Feature Not Allowed".

TITLE: Selecting Quick Access Option with only One SIM
ANCHOR: 0023_01
SOURCE: Conversation with John Holstrom and Guy Lanrezac
The user will not be able to add the "SIM Selection" to his/her quick access list while only one SIM is inserted. However, if the quick access item is already in the list, then, when the user accesses it, it will display an error message "Feature Not Available".

- Output Requirements

TITLE: Result of Quick Access Selection
ANCHOR: 0024_01
SOURCE: [2]
Once the user selects the SIM Selection Quick Access item, the current SIM will be toggled. This includes the ME powering down the primary SIM, powering up the new SIM, and initializing the new SIM as stated in GSM 11.11 "SIM Initialization Procedure". In other words, this is just as if the user pulled out the current SIM and inserted a new one.

2.3.6.2.3 Idle Display (To be confirmed by legal)

- Introduction

Another mechanism must be available to make the user aware of which SIM card he/she is currently using.

- Output Requirements

TITLE: Display of Current SIM
ANCHOR: 0025_01
SOURCE: [2]
The SIM currently in use will be displayed on the bottom line of the idle display. The text will be either "SIM 1" or "SIM 2".

TITLE: Idle Display Priority
ANCHOR: 0026_01
SOURCE: [2]
The priority of the current SIM in use will be the lowest, underneath the Alternate Line Service Information.

2.3.6.3 Guidelines

2.3.6.3.1 Phone Start Up

- Introduction

The requirements listed below are general guidelines for the SIM selection upon the user powering up the phone.

- Guidelines

TITLE: Choosing the SIM at Power-up
ANCHOR: See below
SOURCE: [2]

7. When the phone is turned on, the SIM in the default location will be first selected. If it is a valid card, then it will be initialized. (0028_02)
8. If there is no card, a non-GSM card, or non-SIM card in the default location, the next location will be searched. If it is a valid card, then it will be initialized. (0029_02)
9. If there is a card in the default location, but doesn't respond to power up, an error message will be displayed "Check Card x" where x is either 1 or 2. (0030_02)
10. If an error occurs while initializing the current card, an error message will be displayed "Check Card x" where x is either 1 or 2. (0031_02)
11. If no card is found, an error message will be displayed "Check Card". (0032_01)
12. If only a non-GSM card or non-SIM card is found, an error message will be displayed "Check Card". (0033_01)

2.3.6.3.2 SIM Activity after Phone Start Up

- Introduction

The requirements listed below are general guidelines for the SIM selection after the phone was powered up.

- Guidelines

TITLE: Adding/Removing SIM after Power-up
ANCHOR: See below
SOURCE: [2]

13. If the user removes the SIM card currently in use, the phone will search the other slot and try to start the card in that slot. (0034_01)
14. If there is no card in the other slot, then an error message will be displayed "Check Card". If it is a valid card in the other slot, then it will be initialised per GSM 11.11 "SIM Initialisation Procedure." (0035_02)
15. **If the user inserts a card in the default location, the phone will automatically switch to it.**

2.3.6.4 Software Requirements Traceability Matrix

Table 1: Software Requirements Traceability Matrix

Anchor	Requirement Title	Design Document Reference	Test Plan Document Reference
0001_01	Factory Default SIM Setting		
0002_01	Default SIM Setting		
0003_02	Extended Menus Flex Bits		
0004_01	Flexing the SIM Selection Feature		
0005_01	Resetting the Default SIM		
0006_01	SIM Selection Menu		
0007_01	Select SIM Menu		
0008_01	Select SIM Menu Options		
0009_01	Current SIM Menu Option		
0010_01	Default SIM Menu		
0011_01	Default SIM Menu Options		
0012_01	Current Default SIM Menu Option		
0013_01	SIM Selection during a Call		
0014_01	SIM Selection Visibility		
0015_01	SIM Insertion while in Call Related Features		
0016_01	SIM Removal while in Call Related Features		
0017_01	Result of Select SIM Choice		
0018_01	Result of New Default SIM Choice		
0019_01	Quick Access Icon		
0020_01	Short Quick Access Prompt		
0021_01	Long Quick Access Prompt		
0022_01	Selecting Quick Access Option while in a Call		
0023_01	Selecting Quick Access Option with only One SIM		
0024_01	Result of Quick Access Selection		
0025_01	Display of Current SIM		
0026_01	Idle Display Priority		
0027_01	Choosing the SIM at Power-up		
0028_02	Choosing the SIM at Power-up		
0029_02	Choosing the SIM at Power-up		
0030_02	Choosing the SIM at Power-up		
0031_02	Choosing the SIM at Power-up		
0032_01	Choosing the SIM at Power-up		
0033_01	Choosing the SIM at Power-up		
0034_01	Adding/Removing SIM after Power-up		
0035_02	Adding/Removing SIM after Power-up		
0036_01	Adding/Removing SIM after Power-up		
0037_01	SIM State after Master Reset		
0038_01	Default Extended Menu Location		
0039_02	Confirmation for Switching the SIM		

2.4 MMI for security

2.4.1 Keypad tone suppression upon PIN entry

Part of CR change for GSM 11.14

2.4.2 Character display suppression upon PIN entry

Already active

2.4.3 Elimination of PIN taping, sniffing mechanisms &/or applications

A MSCT Security document is available: DMLV/SS/DG/Doc4/05

2.5 Flex

2.5.1 Flex for generic Dual Slot StarTAC

The flex for the core the core dual slot StarTAC can be found in the core Product Description on the Lotus Notes server. It will have the following specifics:

- Direct Access to Voicemail (Voicemail key replacing MR key as per StarTAC 150 – George)

2.5.2 Flex Barclays / Cellnet Trial

The flex for the Barclays / Cellnet dual slot StarTAC can be found in the Class C Product Description on the Lotus Notes server. It will have the following specifics:

- Specific Wake Up Graphic (in definition)
- Direct Access to SIM Tool Kit menu (Blue button key replacing MR key)
- New Quick Access order:

1. Call Voicemail
2. Read Messages
3. Vibracall On / Off
4. Find by Name
5. Phone Mute On/Off
6. Last Calls Received
7. Divert All On or Off
8. Last Call Timer
9. Restrict my ID

- Storage of voicemail number under "Message settings" to 901
- Type 1 SIM Lock to the first 5 digits of the IMSI (234-10)
- SMS CB switched by default on channel 200

3 Alex refresh: Flexible mobile ATM and bank info in the hand

3.1 Change Requests needed from the GSM specification

Tracking Number	Description	Specified in GSM
	USSD to be better adapted for Mobile Commerce (Action Daniel Ayela)	

3.2 Software

3.2.1 Main Features

Alex Refresh will support all Alex existing features. The following chart resumes the added features requested for Alex Refresh.

Tracking Number	Description	StarTAC 85 (modem)	ZAP (firestorm)	ZAP refresh (firestorm)	Alex Refresh– (modem) Marketing Request
0198	Headset answer on/off support	No		✓	✓
0198	Smart Key (answer calls with Smart Key – when connected to headset adapter)			✓	✓
	GSM Phase 2 USSD as per 04.90, v5.0.1				✓

3.2.2 SIM Tool Kit

All classes (1, 2 & 3) + all second card reader commands of GSM 11.14 version 7.0 are requested for Alex Refresh.
The following chart summarises the different SIM Tool Kit commands that are requested. They have been prioritised 1 & 2. Priority 1 is compulsory for ship acceptance, Priority 2 can be implemented as a running change.

STK command		Description	Priority
Event Download	MT Call	Server could request that the transaction does not go forward	2
	Call Connected		2
	Call Disconnected		2
	Location Status	STK could call a specific number depending on subscriber location (call this Pizza store as you ar just next door!)	1

STK command		Description	Priority
	User Activity	The application recognises that the user is pressing a specific key	1
	Idle Screen Availability	Possibility to insert a logo in idle mode (possibility to insert advertisements or corporate logos)	1
	Card Reader Status		Already Implemented
MO Short Message Control		Gives possibility to forward an SMS	1
Send USSD		Will allow faster transactions	Change Request Pending
Set Up Event List		Multiple event management	1
Timer Management		Do transaction at a cheaper cellular rate	1
Timer Expiration		Do not allow action after pre-defined period	1
Icon		Logo on display	1
UCS2		Universal 2 byte character set. This will be necessary for the Asian build. This might already be implemented in Zap refresh	
Default Choice for Getting Input		Possibility to check last bank account details, remember the latest purchase etc…	1
Default Choice for Default Select Item		A subscriber may wish to have his preferred STK service at the top of the list	1
Select Item Type Indication		SIM pre-defines types of selection	1
Extended Result			2
Status words for handling SIM data download error			2
Next Item Indicator		Completes the Personality MMI which always asks: "OK?". The prompt could be Call? For instance	1
Get Current Value of Timer		SIM asks phone how long since I asked this question	1
Extended text in display text			2
Date, Time & Time Zone		This can be included in Provider Location Information	1

3.2.2.1 SAT Menu selection

SAT menu selection can be done by 3 actions:

- Menu Key
- Card Insertion (Event Driven Command)
- Dedicated key

A marketing request has already been submitted (Venke Ayalur is aware of the issue) that the handset can automatically change font automatically to accept up to 15 characters (left justified) + automatic scrolling.

Operators have expressed their preference to see a maximum number of SIM Tool Kit items on one same screen. At this point of time the ME displays one item at a time. The display of all items of a menu (up to 4 on a graphic display) will depend on availability from core products. The marketing requirement has been submitted to John Holstrom.

3.2.3 Card Reader

3.2.3.1 EMV compliancy

At this point of time, it is clear that all T=0 smart card reader specifications will be based on EMV 3.1.1. This specification is very close to ISO 7816. After meeting world wide smart card scheme owners, it has appeared that every country seem to have some specifics that need to be added on EMV 3.1.1. In some cases 2 implementations can be compatible (for example, one scheme can ask to do a command within 3 milliseconds, and a second scheme can ask to do the same command in exactly 1.5 milliseconds. The solution would be to execute that command in 1.5 milliseconds to be compliant to both schemes).

Listed below are the main schemes Alex refresh needs to be compliant with. One software needs to cover as many schemes as possible. Any subtleties should be handled by flex. MASC (Adelaide) is assessing the effort for implementing these schemes. Once the specifics have been clearly identified, a new version of this MRS will be issued.

Scheme	Specifics	Differences
UKIS		
Cartes Bancaire		
Nets		
Gelt Kard		

3.2.3.2 SIM reader capability

It is requested for Alex Refresh that the B slot can be flexed off for SIM reading capability.

3.2.4 Other Features

SIM Copy

This feature will only be requested if the legal issue on SIM Selection has been lifted!

The following is a MMI proposal for SIM copy
The copy SIM feature will not become available until the user has inserted two GSM SIM cards. If the user is already in the "Phone Book" menu, they will not be able to see the “Copy SIM” menus until they exit out of this menu node and re-enter. In all other cases, when they go into the Phone Book features, the “Copy SIM” menus should be available.

Phone Book	Personal Numbers	Find Entry By Name		
		Find Entry By Location		
		Add Entry		
		Check Capacity	Check Phone Capacity	
			Check SIM capacity	Check Capacity SIM1
				Check Capacity SIM2
		Prevent Access	No Memory Restrictions	
			To SIM Card memory	To SIM Card 1
				To SIM Card 2
		Copy SIM Memory	Copy SIM1 to SIM2	
			Copy SIM2 to SIM1	

SIM1 is the plug in, SIM2 is the large SIM.
Error messages are to be defined when the capacity of a SIM is full.
When selecting a name via Find By Name or Find By Location, the last option would be “Copy Entry”.

4 Leap : Browsing, On-line purchasing, Info-base in-hand, Bank in hand

4.1 Introduction

This phase concerns Platform Leap which has a plug-in SIM reader. In this case, the data inside, WAP compliant phone can have an accessory (illustrated by the smart battery cassette reader) which allows us to follow the Phase 1 and 2 procedure for dual slot handling.
As WAP specification has not yet been defined to date. We are creating two sub-sections to phase 3:

- 3a assumes control of Leaps data capability via SIM Tool Kit. At this point of time the definition of how a SAT can generate a data call is still under investigation and will be defined in a further issue of this document.
- 3b assumes a new architecture based around WAP and the SIM both controlling the data capability (under definition) Contacts: Doug Main / Dave Gannon. 3b will be defined in a further issue of this document.
- 3C architecture around Java and MExE is under investigation

At this point of time, it seems WAP will not be available before Q3 '99. The Leap team is assessing the possibility of introducing an Unwired Planed browser (Jim Filicette to confirm).
The technical team (Dave Gannon, Daniel Ayela, Doug Main) will assess how STK can co-exist with UP browser and WAP.
If necessary, this will be defined in future SMG9 meetings.

4.2 Change Requests needed from the GSM specification

Tracking Number	Description	Specified in GSM
	STK inter action with WAP and/or UP browser	

4.3 Software Features

At this point of time, the Marketing Request is that Leap supports all features supported in Alex & Alex refresh.
EMV card reader compliance will be clarified after assessment from MASC teams and dependant on future schemes negotiated in the first half of 1999.

5 Einstein : Web browsing, On-line purchasing, Info-base in-hand, Bank in hand, ticketing

Note : when inserting a SC in the handset we want to be able to read the card format on the screen (for example AMEX, VISA etc…).

5.1 Introduction

This phase concerns platforms supporting optimised smart card operating systems, GPRS, SAT, WAP and data inside. SIM cards should start having internal applications described as multi-application SC.

Java & MExE are also being compared against WAP.

As WAP specification has not yet been defined to date Software Requirements for Phase 4 will be issued in a further version f this document.

5.2 New MMI features

6 Other identified features which have not been scheduled to date

6.1 Multi-slot management

In future we will see the introduction of multi slot possibilities. The main case where it will occur would be inside a vehicle. The following chart resumes the possibilities, in bold is the SIM which takes priority at power on.

Plug in SIM (A Slot)	Large card (ISO – B Slot)	External Reader or built in car reader
	SIM	**SIM**
	SIM + SAT	**SIM**
	SIM	**SIM + SAT**
	SC T=0/1	**SIM**
	SIM + SAT	**SC T=0/1**
	SIM + SAT	SC T=0/1
	SIM	SC T=0/1
SIM		**SIM**
SIM + SAT		**SIM**
SIM		**SIM + SAT**
SIM +SAT		**SIM + SAT**
SIM + SAT		SC T=0/1
SIM		SC T=0/1
SIM	SIM	**SIM**
SIM	SIM + SAT	**SIM**
SIM + SAT	SIM	**SIM**
SIM + SAT	SIM + SAT	**SIM**
SIM + SAT	SIM + SAT	**SIM + SAT**
SIM + SAT	SC T=0/1	**SIM**
SIM	SC T=0/1	**SIM**
SIM	SC T=0/1	**SIM + SAT**
SIM + SAT	SC T=0/1	**SIM + SAT**
SIM	**SIM**	SC T=0/1
SIM	**SIM + SAT**	SC T=0/1
SIM + SAT	**SIM + SAT**	SC T=0/1
SIM + SAT	SC T=0/1	**SC T=0/1**

A new priority table will be issued for the multi-application cards in a further version of this document.

6.2 Software

6.2.1 SAT Menu Selection

6.2.1.1 B-Slot initiation (upon power-up detection)

as above but immediate upon power-up

6.2.1.2 If B-slot card has not yet been initialised

Note: this may be why there needs to be a B-slot command initiation sequence, as there needs to be a way of initialising a card that is not currently known by any SAT application.
Note: This capability is not required for Dec. 98 Trials, but is likely to be required for commercial Mobile smart card terminals, where down-loadable SAT apps are envisaged.
Action: D. Gannon to investigate how, under his currently developing architecture, PIN encryption keys would be handled, if the SAT B-slot handler app is downloaded and not pre-loaded.

6.2.1.3 Network initiation

Where the user in communication with a network service, and that service requires the participation of a B-slot card, a mechanism is required for the network to initiate a B-slot transaction. This may be via, intermediate initiation of a SAT application.

6.2.1.4 IN-CALL handling of B-slot applications

Being investigated

6.2.1.5 During B-slot applications, suitable suppression of incoming SMS alerts and displays

6.3 Advantageous features for Motorola

6.3.1 Pre-initialised B-slot card control

To be looked at for the future

6.3.2 Auto-initialisation procedure for un-initialised B-slot cards

To be looked at for the future

6.3.3 Auto-connect mechanisms for Certain Priority B-slot cards

To be looked at for the future